

# SERVICE MANUAL

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COMPACT DISC PLAYER

BASIC CD MECHANISM : DA23L

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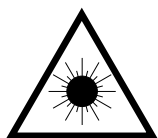
This Service Manual is the "Revision Publishing" and replaces "Simple Manual"  
(S/M Code No. 09-003-341-6T1).

## PROTECTION OF EYES FROM LASER BEAM DURING SERVICING

This set employs laser. Therefore, be sure to follow carefully the instructions below when servicing.

### WARNING!

WHEN SERVICING, DO NOT APPROACH THE LASER EXIT WITH THE EYE TOO CLOSELY. IN CASE IT IS NECESSARY TO CONFIRM LASER BEAM EMISSION. BE SURE TO OBSERVE FROM A DISTANCE OF MORE THAN 30cm FROM THE SURFACE OF THE OBJECTIVE LENS ON THE OPTICAL PICK-UP BLOCK.



- Caution: Invisible laser radiation when open and interlocks defeated avoid exposure to beam.
- Advarsel: Usynlig laserstråling ved åbning, når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.

### VAROITUS!

Laiteen Käyttäminen muulla kuin tässä käyttöohjeessa mainitulla tavalla saattaa altistaa käyttäjän turvallisuusluokan 1 ylitävälle näkymättömälle lasersäteilylle.

### WARNING!

Om apparaten används på annat sätt än vad som specificeras i denna bruksanvisning, kan användaren utsättas för osynlig laserstrålning, som överskrider gränsen för laserklass 1.

### CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

### ATTENTION

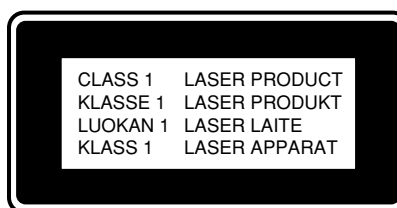
L'utilisation de commandes, réglages ou procédures autres que ceux spécifiés peut entraîner une dangereuse exposition aux radiations.

### ADVARSEL!

Usynlig laserstråling ved åbning, når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.

This Compact Disc player is classified as a CLASS 1 LASER product.

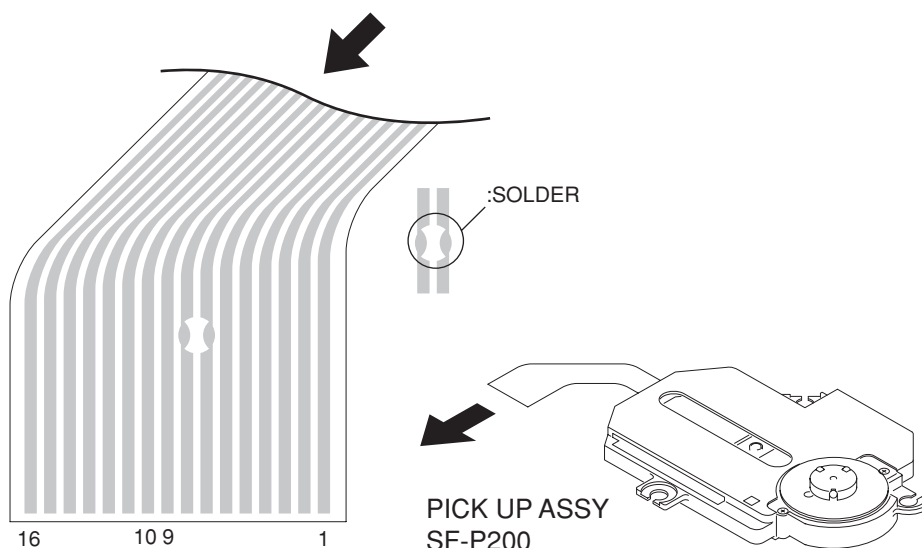
The CLASS 1 LASER PRODUCT label is located on the rear exterior.



## Precaution to replace Optical block (SF-P200)

Body or clothes electrostatic potential could ruin laser diode in the optical block. Be sure ground body and workbench, and use care the clothes do not touch the diode.

- 1) After the connection, remove solder shown in the right figure.



## SPECIFICATIONS

<b>Tracking system</b>	3-beam laser
<b>Laser pickup</b>	Semiconductor laser
<b>D/A conversion</b>	4-times oversampling digital filter + 1-bit DAC
<b>Frequency response</b>	20 – 20,000 Hz
<b>Output</b>	PHONES/LINE OUT jack (stereo mini-jack)
<b>Maximum output</b>	12 mW + 12 mW (EIAJ 16 ohms at 1 kHz) 500 mV (47 k ohms at 1 kHz)
<b>Power supply</b>	DC 3 V using two size AA (LR6) alkaline batteries DC 2.4 V using commercially available rechargeable batteries AC house current using the supplied AC adaptor
<b>Maximum outside dimensions</b>	132 (W) × 30 (H) × 141 (D) mm (excluding projecting parts and controls) (5 1/4 × 1 3/16 × 5 5/8 in.)
<b>Weight</b>	Approx. 270 g (9.5 oz.) excluding batteries
<b>AC adaptor AC-D603</b>	Rated voltage: AC 120 V, 60 Hz

- Design and specifications are subject to change without notice.

## ACCESSORIES LIST

DESCRIPTIONで判断できない物は "REFERENCE NAME LIST" を参照してください。  
If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO	PART NO.	KANRI NO.	DESCRIPTION
	8A-HC3-911-010		IB,U(ESF)C2
⚠	87-B30-282-010		AC ADAPTOR,AC-D603UNC
	87-B30-225-010		HEADPHONE,HP-M034
	8A-HC3-951-010		CASE,CARRING (SP911)<1UB2,1U32>

# ELECTRICAL MAIN PARTS LIST

DESCRIPTIONで判断できない物は "REFERENCE NAME LIST" を参照してください。  
If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO	PART NO.	KANRI NO.	DESCRIPTION	REF. NO	PART NO.	KANRI NO.	DESCRIPTION
IC				C315	87-012-274-080		CHIP CAP,U 1000P-50B
	87-A21-448-040	C-IC,BH6554FV		C316	87-010-831-080		C-CAP,U,0.1-16F
	8A-HC3-610-010	C-IC,MN101C439-AC		C317	87-012-274-080		CHIP CAP,U 1000P-50B
	87-A21-030-040	C-IC,S-93C46AMFN		C318	87-012-274-080		CHIP CAP,U 1000P-50B
	87-A21-446-010	C-IC,MN662782RPT1		C319	87-012-188-080		C-CAP,U 47P-50 CH
	87-A21-561-040	C-IC,MSM51V17400D-SJ		C401	87-016-431-080		C-CAP,E 220-4 5.5N
	87-A21-578-040	C-IC,AN8838NSB		C403	87-016-429-080		C-CAP,E 100-4 5.5N
	87-A21-543-040	C-IC,NJU7012		C405	87-010-831-080		C-CAP,U,0.1-16F
	87-A21-521-040	C-IC,BH6517FS		C406	87-012-273-080		C-CAP,U 820P-50 B
	87-A21-085-040	C-IC,TA2120FN		C407	87-010-787-080		CAP, U 0.022-25
TRANSISTOR				C408	87-A10-260-080		C-CAP,U 0.1-16 K B
	87-026-412-080	C-TR RN1305		C409	87-A10-827-080		C-CAP,U 0.47-6.3 K B
	87-A30-075-080	C-TR,2SA1235F		C410	87-012-286-080		CAP, U 0.01-25
	89-211-323-080	C-TR,2SB1132R		C411	87-A11-062-080		C-CAP,S 2.2-16 Z F
	89-416-643-080	C-TR,2SD1664R		C412	87-016-429-080		C-CAP,E 100-4 5.5N
	87-A30-076-080	C-TR,2SC3052F		C413	87-010-831-080		C-CAP,U,0.1-16F
	89-113-695-680	C-TR,2SA1369G/H		C415	87-A10-047-080		C-CAP,U 1-10 Z F
	87-A30-332-040	C-TR,CPH3106		C416	87-010-831-080		C-CAP,U,0.1-16F
	87-A30-278-040	C-FET,2SK2980		C417	87-012-188-080		C-CAP,U 47P-50 CH
	89-115-865-080	C-TR,2SA1586GR		C418	87-012-164-080		C-CAP,U 2P-50 CK
	87-A30-336-040	C-TR,UMH4N		C419	87-012-164-080		C-CAP,U 2P-50 CK
	87-026-429-080	TR,RN2311		C420	87-010-831-080		C-CAP,U,0.1-16F
	87-026-418-080	TR,RN1311 (0.1W)		C421	87-010-831-080		C-CAP,U,0.1-16F
	87-A30-377-040	C-TR,2SB815B7		C422	87-010-831-080		C-CAP,U,0.1-16F
DIODE				C423	87-A10-047-080		C-CAP,U 1-10 Z F
	87-A40-614-040	C-DIODE,SFPB-72		C424	87-A10-047-080		C-CAP,U 1-10 Z F
	87-A40-469-080	C-DIODE,HSM2838CTR		C451	87-A10-047-080		C-CAP,U 1-10 Z F
	87-A40-836-040	C-ZENER,HZM6.2NB1		C501	87-016-429-080		C-CAP,E 100-4 5.5N
	87-A40-592-040	C-ZENER,HZM11NB2		C502	87-010-831-080		C-CAP,U,0.1-16F
	87-A40-674-080	C-DIODE,HRC0202A		C504	87-010-831-080		C-CAP,U,0.1-16F
	87-001-166-080	DIODE,1SS301		C505	87-A11-228-080		C-CAP,U 0.027-25 K B
MAIN C.B				C506	87-012-199-080		CAP 220P
C101	87-012-286-080	CAP, U 0.01-25		C507	87-012-193-080		C-CAP,U 82P-50 CH
C102	87-A11-031-080	C-CAP,E 100-16 M WX		C508	87-012-193-080		C-CAP,U 82P-50 CH
C103	87-012-286-080	CAP, U 0.01-25		C509	87-012-273-080		C-CAP,U 820P-50 B
C104	87-A11-031-080	C-CAP,E 100-16 M WX		C510	87-A11-241-080		C-CAP,TN 22-6.3 M F93 A
C105	87-010-831-080	C-CAP,U,0.1-16F		C512	87-A11-241-080		C-CAP,TN 22-6.3 M F93 A
C201	87-012-286-080	CAP, U 0.01-25		C514	87-A11-228-080		C-CAP,U 0.027-25 K B
C202	87-016-427-080	C-CAP,E 47-6.3 5.5N		C515	87-A11-228-080		C-CAP,U 0.027-25 K B
C203	87-012-286-080	CAP, U 0.01-25		C516	87-A10-260-080		C-CAP,U 0.1-16 K B
C204	87-016-430-080	C-CAP,E 100-6.3 5.5N		C518	87-012-176-080		C-CAP,U 15P-50 CH
C205	87-016-421-080	C-CAP,E 10-16 5.5N		C520	87-016-426-080		C-CAP,E 47-4 5.5N
C206	87-A10-047-080	C-CAP,U 1-10 Z F		C521	87-012-274-080		CHIP CAP,U 1000P-50B
C207	83-HC3-635-080	C-CAP,E 220-6.3 WF		C522	87-A10-047-080		C-CAP,U 1-10 Z F
C208	87-016-422-080	C-CAP,E 22-6.3		C523	87-A10-047-080		C-CAP,U 1-10 Z F
C209	87-A10-260-080	C-CAP,U 0.1-16 K B		C524	87-012-172-080		C-CAP,U 10P-50 CH
C210	87-A10-047-080	C-CAP,U 1-10 Z F		C601	87-016-429-080		C-CAP,E 100-4 5.5N
C211	87-010-787-080	CAP, U 0.022-25		C602	87-012-286-080		CAP, U 0.01-25
C212	87-012-266-080	C-CAP,U 220P-50 B		C603	87-012-286-080		CAP, U 0.01-25
C213	87-A11-062-080	C-CAP,S 2.2-16 Z F		C604	87-012-286-080		CAP, U 0.01-25
C214	87-010-831-080	C-CAP,U,0.1-16F		C701	87-016-429-080		C-CAP,E 100-4 5.5N
C301	87-016-426-080	C-CAP,E 47-4 5.5N		C702	87-012-281-080		C-CAP,U 3900P-50 B
C302	87-012-286-080	CAP, U 0.01-25		C703	87-012-281-080		C-CAP,U 3900P-50 B
C303	87-012-273-080	C-CAP,U 820P-50 B		C704	87-012-273-080		C-CAP,U 820P-50 B
C304	87-010-831-080	C-CAP,U,0.1-16F		C705	87-012-273-080		C-CAP,U 820P-50 B
C305	87-012-286-080	CAP, U 0.01-25		C706	87-010-831-080		C-CAP,U,0.1-16F
C306	87-012-274-080	CHIP CAP,U 1000P-50B		C707	87-A11-062-080		C-CAP,S 2.2-16 Z F
C307	87-012-286-080	CAP, U 0.01-25		C708	87-A11-062-080		C-CAP,S 2.2-16 Z F
C309	87-016-429-080	C-CAP,E 100-4 5.5N		C709	87-A10-047-080		C-CAP,U 1-10 Z F
C310	87-012-286-080	CAP, U 0.01-25		C710	87-016-421-080		C-CAP,E 10-16 5.5N
C311	87-A10-047-080	C-CAP,U 1-10 Z F		C711	87-016-429-080		C-CAP,E 100-4 5.5N
C313	87-012-274-080	CHIP CAP,U 1000P-50B		C712	87-A10-353-080		C-CAP,U0.22-10KB
C314	87-012-274-080	CHIP CAP,U 1000P-50B		C713	87-A10-260-080		C-CAP,U 0.1-16 K B
				C714	87-A11-062-080		C-CAP,S 2.2-16 Z F
				C715	87-016-421-080		C-CAP,E 10-16 5.5N
				C716	87-010-831-080		C-CAP,U,0.1-16F
				C717	87-010-831-080		C-CAP,U,0.1-16F
				C718	87-016-431-080		C-CAP,E 220-4 5.5N
				C719	87-016-431-080		C-CAP,E 220-4 5.5N
				C720	87-012-274-080		CHIP CAP,U 1000P-50B

REF. NO	PART NO.	KANRI NO.	DESCRIPTION	REF. NO	PART NO.	KANRI NO.	DESCRIPTION
C721	87-012-274-080		CHIP CAP,U 1000P-50B	S302	87-A91-622-010		SW,MICRO PV1102
C722	87-010-831-080		C-CAP,U,0.1-16F	X401	87-A70-261-080		C-VIB,CER 16.93MHZ CSTCW-MX03T
C723	87-A10-047-080		C-CAP,U 1-10 Z F				
CN301	87-A61-241-080		C-CONN,26P H 52437-2691				
CN501	87-009-214-080		CONN,16P 52207-1690				
				LID C.B			
CN601	87-099-522-080		CONN,6P ZH-SM3 V W	CN801	87-A61-241-080		C-CONN,26P H 52437-2691
FB701	83-XM1-617-080		C-COIL,BK2125HM601	LCD801	8A-HC3-605-010		LCD,AHC-3
FB704	83-XM1-617-080		C-COIL,BK2125HM601	S801	87-A90-232-080		C-SW,TACT SKQRAA
J101	87-A60-421-010		JACK,DC HEC3600 BLK 6	S802	87-A90-232-080		C-SW,TACT SKQRAA
J701	85-HC5-616-010		JACK,3.5 ST W/R GRN	S803	87-A90-232-080		C-SW,TACT SKQRAA
L201	87-A50-355-080		C-COIL,330UH LQH3C	S804	87-A90-232-080		C-SW,TACT SKQRAA
L202	87-A50-587-080		C-COIL,68UH-CDRH5D28	S805	87-A90-232-080		C-SW,TACT SKQRAA
L203	87-A50-355-080		C-COIL,330UH LQH3C	S806	87-A90-232-080		C-SW,TACT SKQRAA
L301	87-A50-367-080		C-COIL, 10UH LQG21F	S807	87-A90-232-080		C-SW,TACT SKQRAA
L302	87-A50-367-080		C-COIL, 10UH LQG21F	S808	87-A90-232-080		C-SW,TACT SKQRAA
L401	87-A50-556-080		C-COIL, 47UH K LQH3C	S809	87-A90-232-080		C-SW,TACT SKQRAA
L402	87-A50-440-080		C-COIL, 100UH K LQH3C34				
L501	87-A50-501-080		C-COIL,10UH-FSLB2520				
L502	87-A50-367-080		C-COIL, 10UH LQG21F				
S301	87-A90-494-080		C-SW,SL 1-1-3 SSSS81				

○チップ抵抗部品コード／CHIP RESISTOR PART CODE

チップ抵抗部品コードの成り立ち

Chip Resistor Part Coding



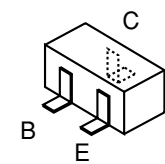
A  
抵抗部品コード  
Resistor Code

桁表示  
Figure  
抵抗値  
Value of resistor

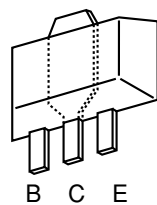
チップ抵抗  
Chip resistor

容量 Wattage	種類 Type	許容誤差 Tolerance	記号 Symbol	寸法／Dimensions (mm)				抵抗コード Resistor Code : A
				外形／Form	L	W	t	
1/16W	1005	± 5%	CJ		1.0	0.5	0.35	104
1/16W	1608	± 5%	CJ		1.6	0.8	0.45	108
1/10W	2125	± 5%	CJ		2	1.25	0.45	118
1/8W	3216	± 5%	CJ		3.2	1.6	0.55	128

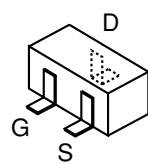
TRANSISTOR ILLUSTRATION



2SA1235  
2SA1586  
2SB815  
2SC3052  
CPH3106  
RN1305  
RN1311  
RN2311  
UMH4N



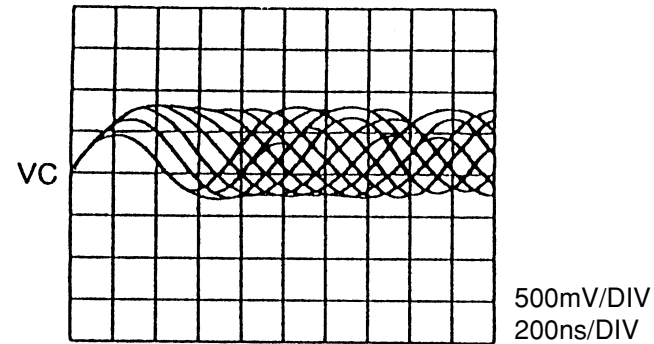
2SA1369  
2SB1132  
2SD1664



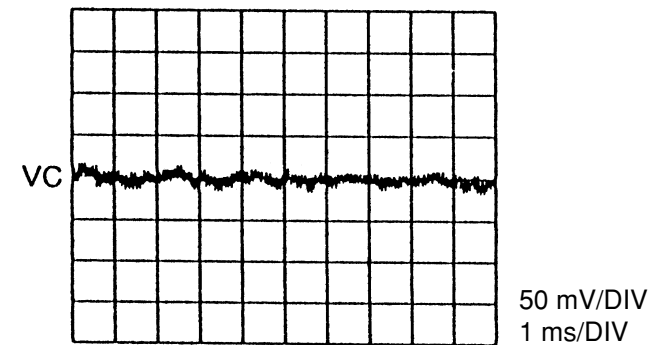
2SK2980

WAVEFORMS

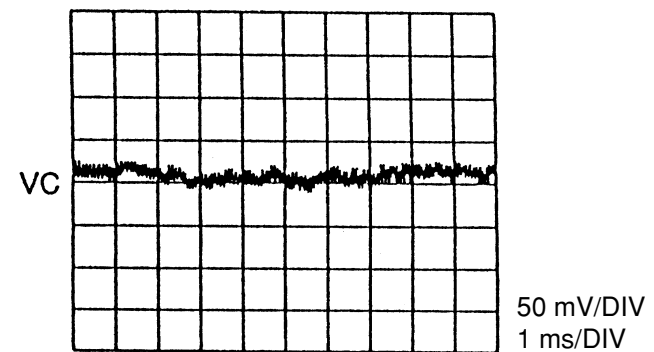
① IC501 Pin7 (RF O)



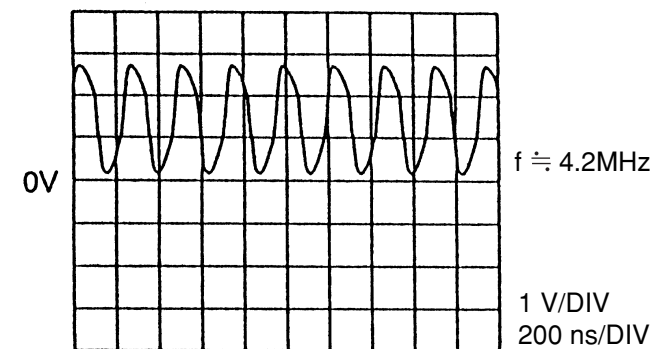
② IC502 Pin4 (TA O)



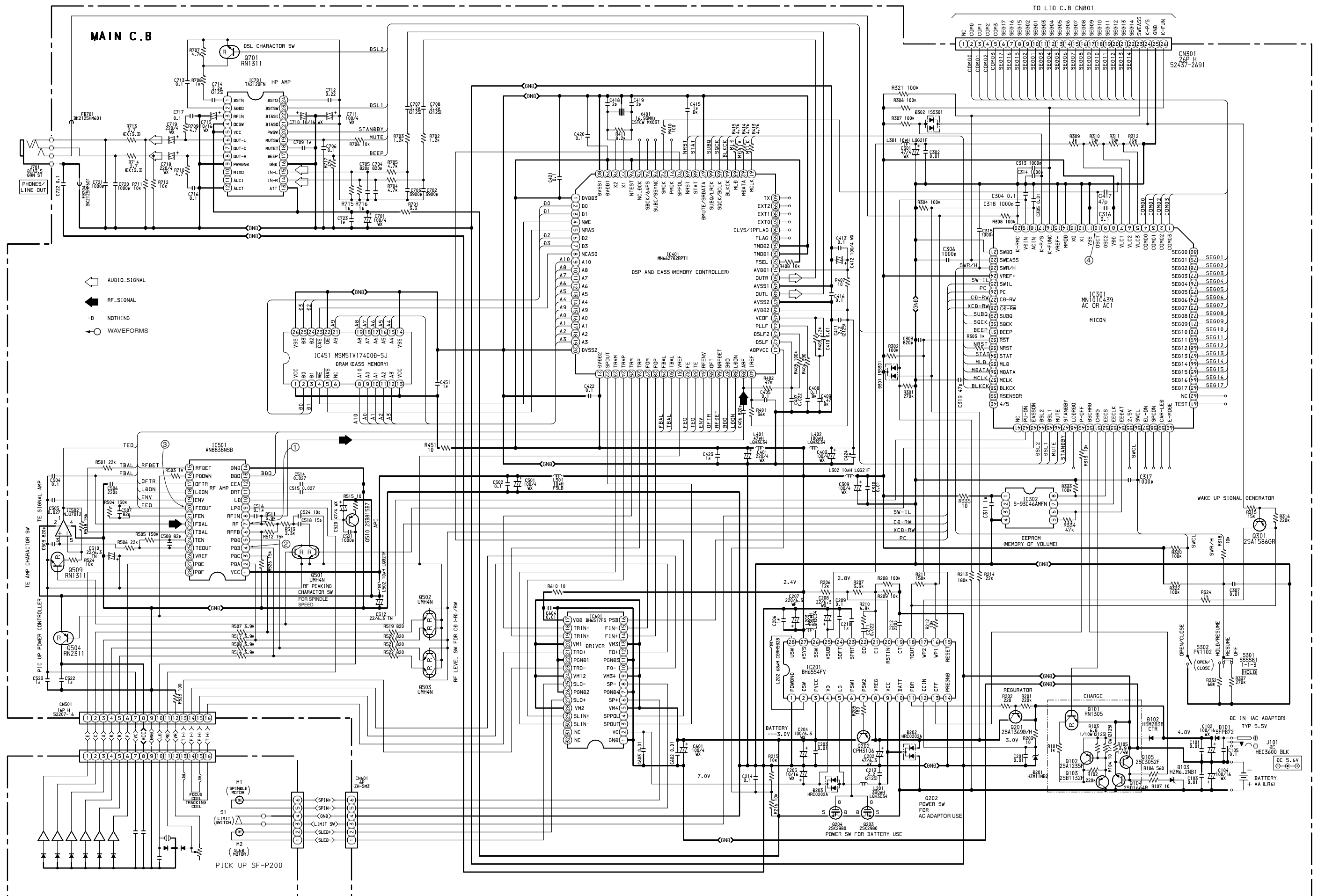
③ IC501 Pin20 (FE O)



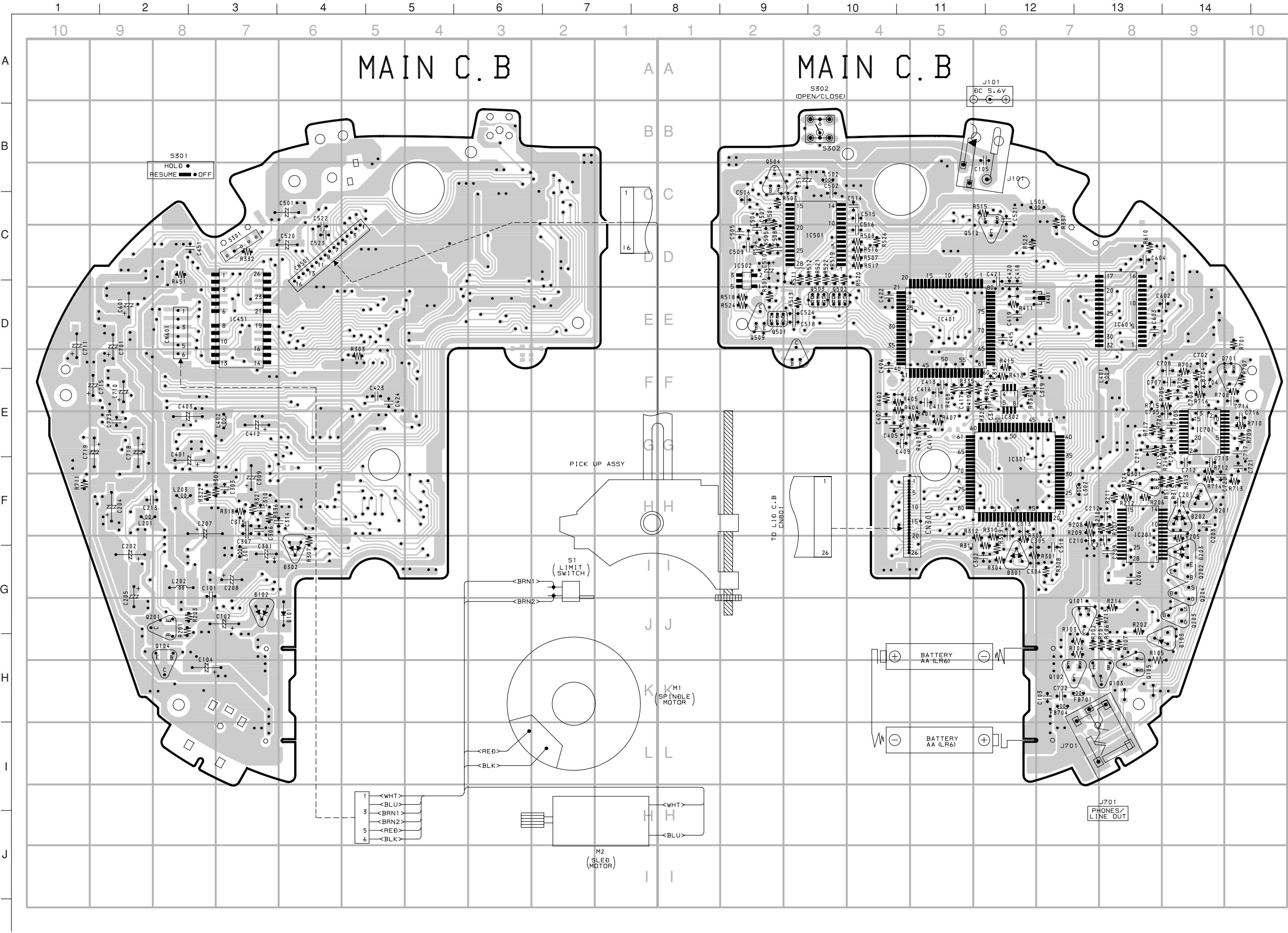
④ IC301 Pin10 (OSC I)



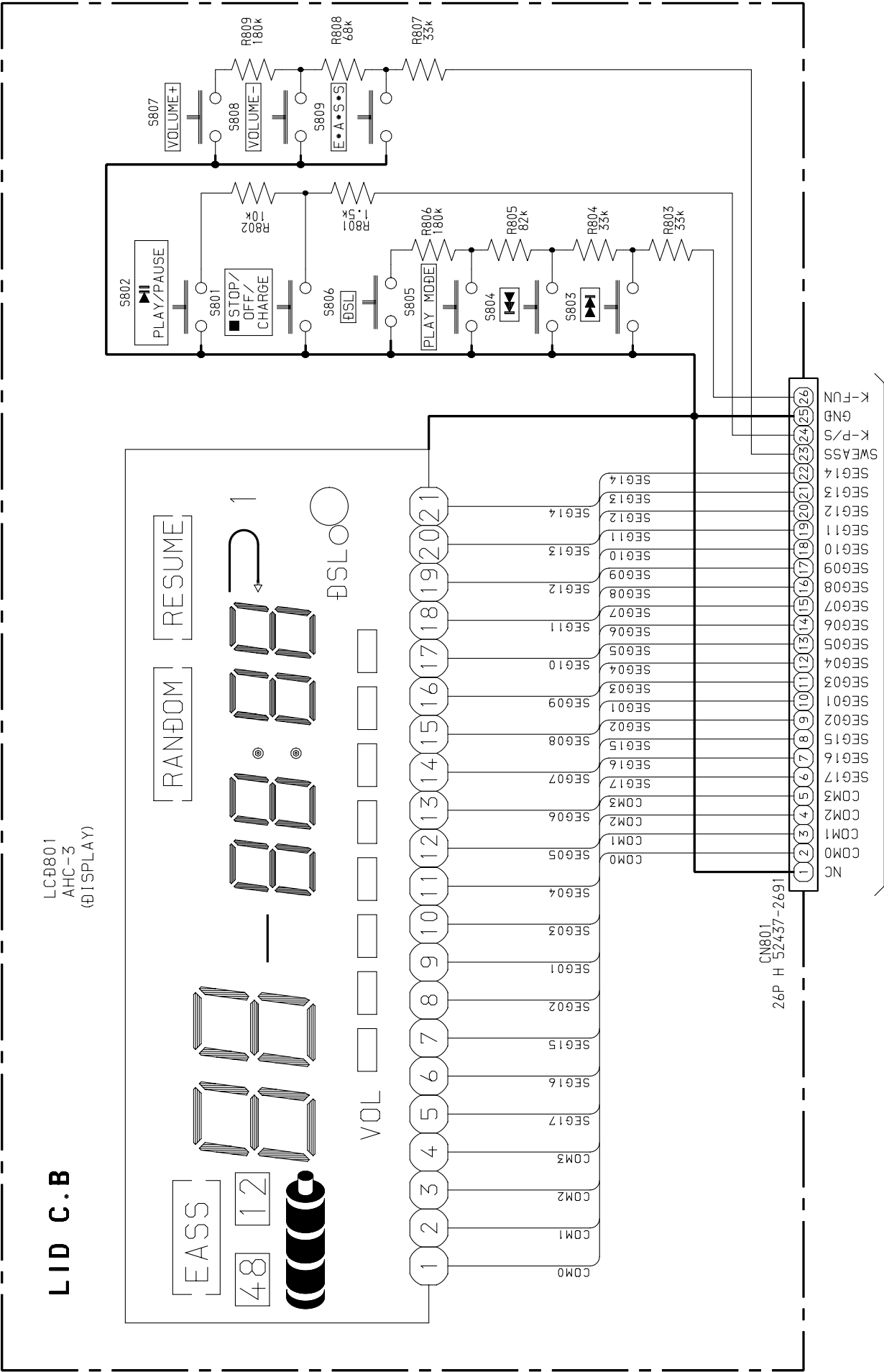
SCHEMATIC DIAGRAM-1 (MAIN SECTION)



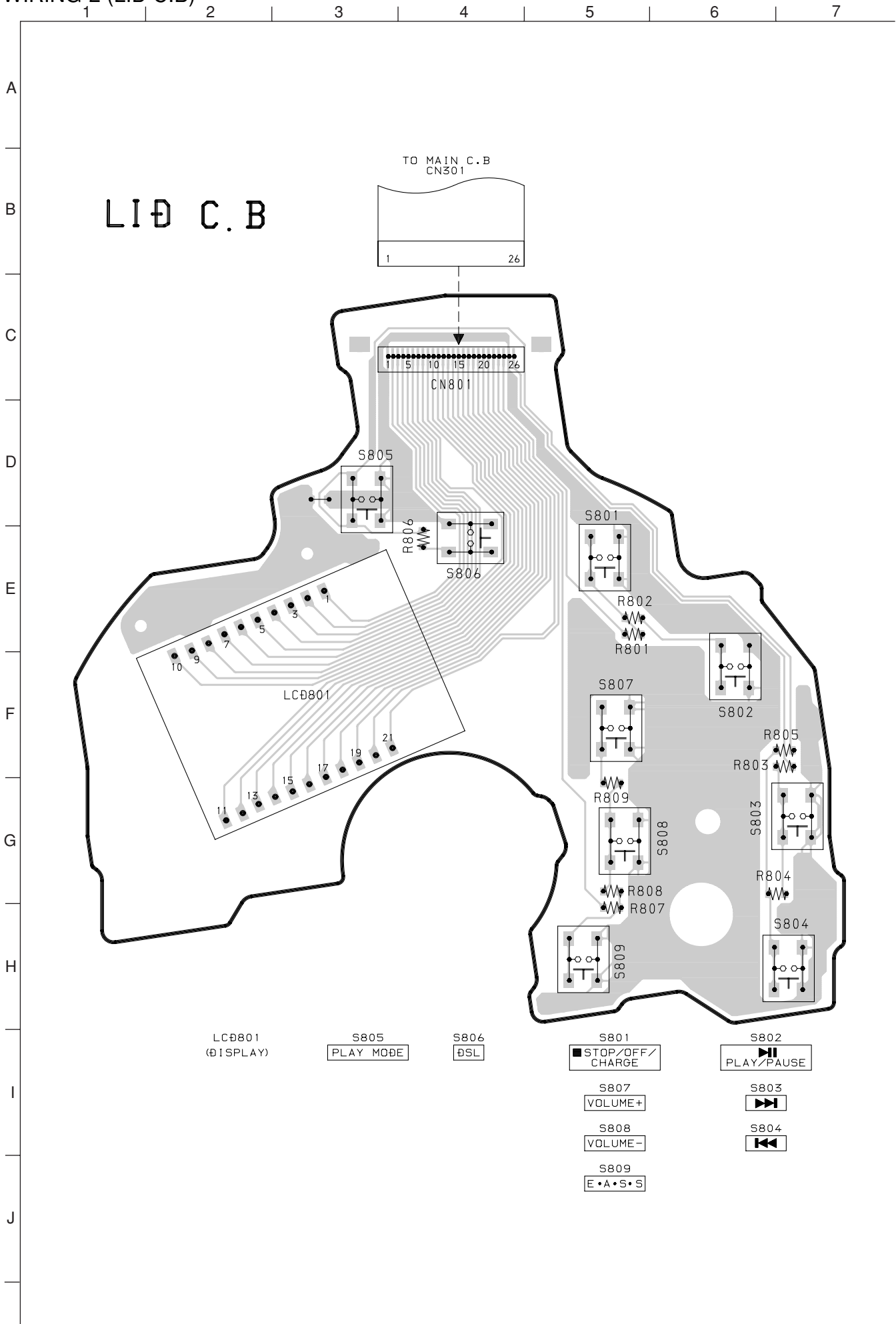




SCHEMATIC DIAGRAM-2 (LID SECTION)

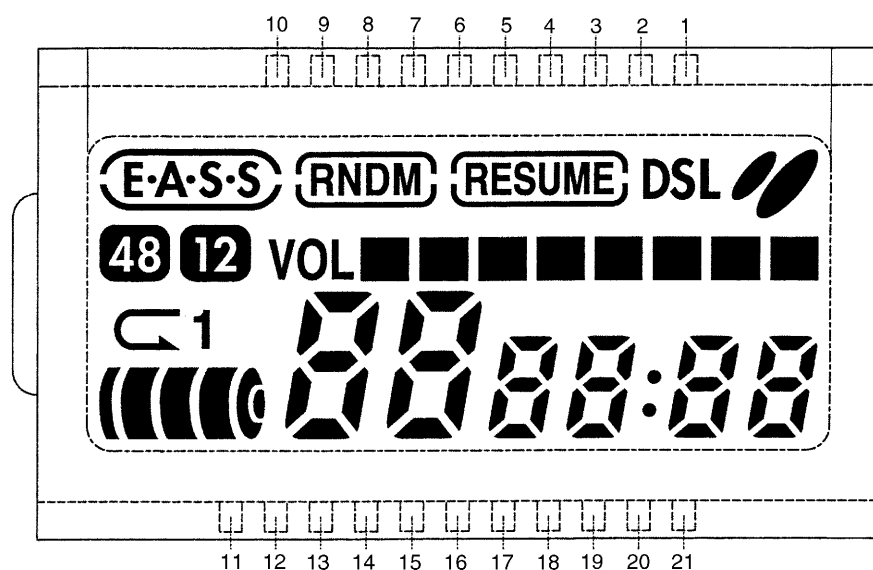


WIRING-2 (LID C.B)

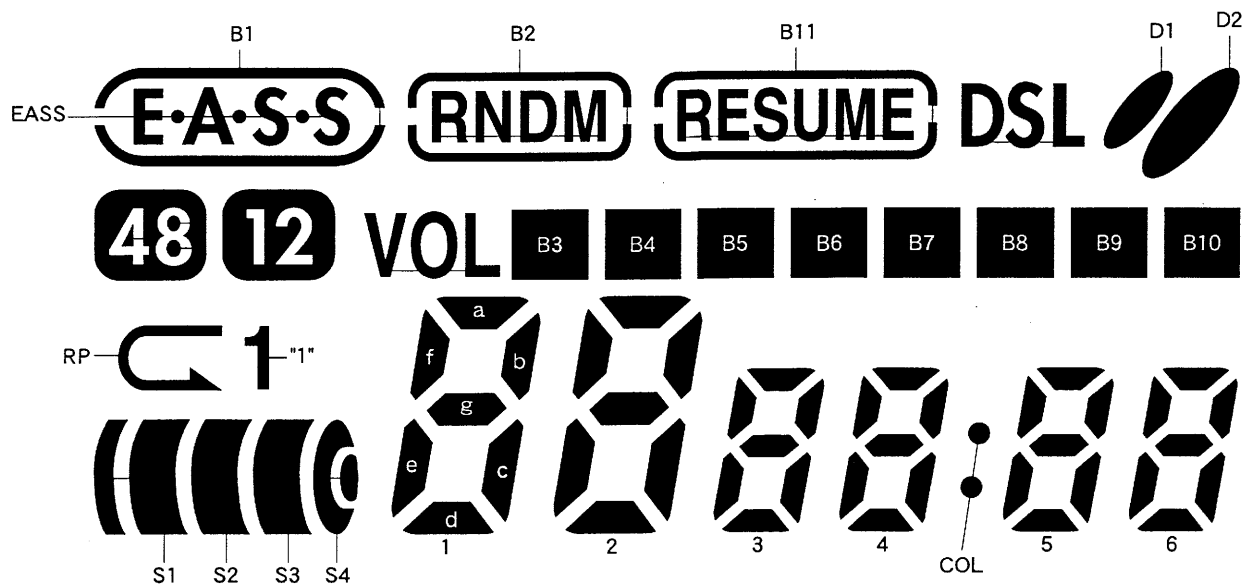




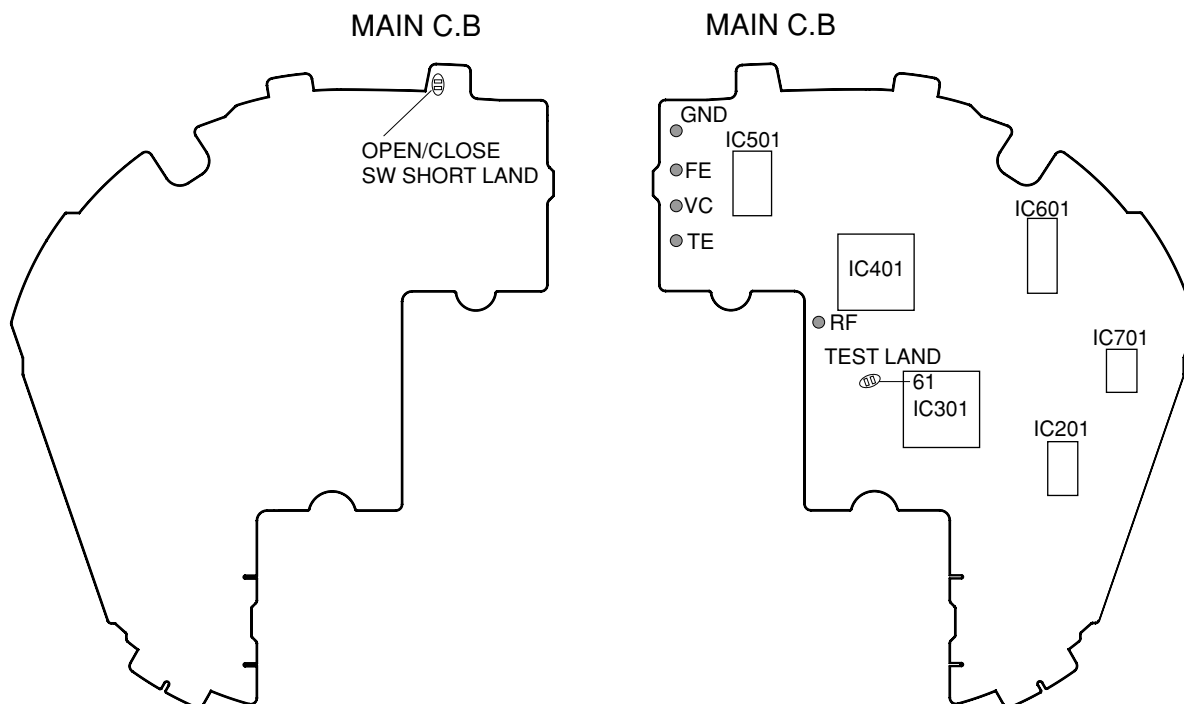
# LCD DISPLAY



No	COM0	COM1	COM2	COM3
1	COM0	---	---	---
2	---	COM1	---	---
3	---	---	COM2	---
4	---	---	---	COM3
5	B8	B9	D1	D2
6	B6	B7	DSL	B11
7	"1"	12	B2	RNDM, RESUME
8	RP	48	B1	EASS
9	S1	S2	S3	S4
10	VOL	1f	1e	1d
11	1a	1b	1g	1c
12	B3	2f	2e	2d
13	2a	2b	2g	2c
14	B4	3f	3e	3d
15	3a	3b	3g	3c
16	B5	4f	4e	4d
17	4a	4b	4g	4c
18	COL	5f	5e	5d
19	5a	5b	5g	5c
20	B10	6f	6e	6d
21	6a	6b	6g	6c



## TEST MODE



The servo circuit of this model is designed to be adjustment-free and the adjustment value and disc distinction (CDDA, CD-R and CD-RW) etc. is adjusted by within the IC. Therefore the adjustment is performed each TOC reading. The adjustment conditions within the IC of each servo can be monitored in this test mode.

### 1. How to start the Test Mode

Starting method of the test mode differ depending upon the type of disc being used. This is because the adjustment values of each servo also differ depending upon the type of disc.

When using the CD-DA or CD-R

- 1) Short-circuit TEST LAND and OPEN/CLOSE SW land.
- 2) Insert the AC plug to the power outlet and install the CD-DA or CD-R disc.
- 3) Press the PLAY and STOP buttons in this sequence and read the TOC.

When using the CD-RW

- 1) Short-circuit the TEST LAND and the OPEN/CLOSE SW land.
- 2) Insert the AC plug to the power outlet and install the CD-RW disc.
- 3) Press the PLAY, STOP and DSL buttons in this sequence and read the TOC. The LCD should display "CD-r" at this point.

Note 1) If the TOC cannot read, "ERR" has appeared on the LCD. The following step 2 and 3 can be verified even if the "TOC" cannot be read.

Note 2) By repeatedly pressing the DISPLAY/ENTER button the all LCD light up and the "TOC" display are repeated.

Note 3) By repeatedly pressing the DSL button the LCD "CD-r" and "CD-d" are repeated.

When the LCD displays "CD-d" ⇒

CD-DA, CD-R is selected.

When the LCD displays "CD-r" ⇒

CD-RW is selected.

Note 4) The test mode is canceled by disconnect the AC plug and remove the soldering of short land.

### 2. DISC distinction (confirmation of the FE waveform)

This mode is possible to perform a confirmation of the disc distinction.

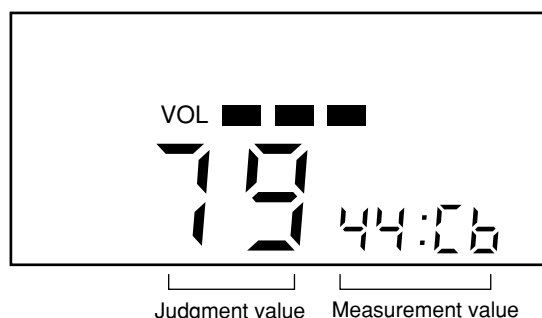
Confirmation method

- 1) Press the DSL button and select "CD-d" or "CD-r" (Refer to Note 3))
- 2) Install the disc.
- 3) Press the MODE button.

The LCD will change as follows:

Example:

Test disc: TCD-782, DISC type select: CD-d, Judgment value: 79, Measurement value: 44 CB



\* All numerical value are displayed in HEX.

What disc the IC has selected can be understood according to this judgment value.

The decision standard of IC is as follows.

	LCD displays "CD-d"	LCD displays "CD-r"
$0 < \text{Judgment value} < 10$	No disc	No disc
$10 < \text{Judgment value} < 32$	CD-RW	No disc
$32 < \text{Judgment value} < C8$	CD-DA and CD-R	CD-RW
$C8 < \text{Judgment value}$		CD-DA and CD-R

The state of the FE waveform can also be understood from to this judgment.

### 3. Confirmation of Sled movement

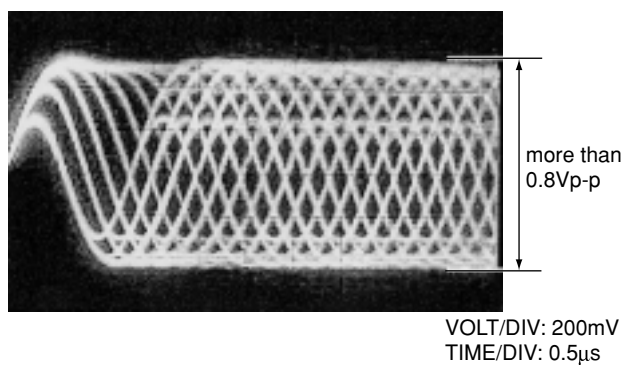
By pressing the F. SKIP or B. SKIP button continuously, it is possible to transfer the pick-up to either the outer side or inner side.

### 4. Confirmation of the RF level

Test point: RF and VC (Vref)

Test disc: TCD-782

Confirm that the RF waveform as shown below.



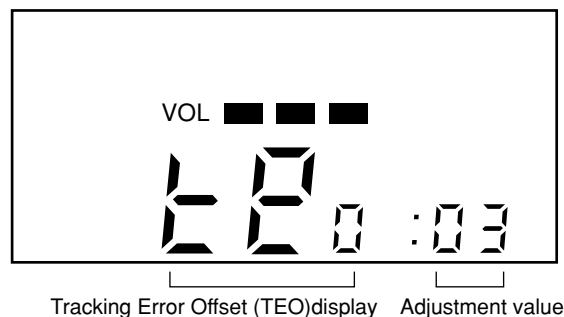
### 6. Confirmation of each servo

It is possible to confirm the adjustment value of each servo by repeatedly pressing the MODE button while the disc is playing. The switchover sequence is as stated below.

Confirmation mode off  $\Rightarrow$  Focus Bias (FB)  $\Rightarrow$  Tracking Balance (TB)  $\Rightarrow$  Tracking Gain (TG)  $\Rightarrow$  Tracking Error Offset (TEO)  $\Rightarrow$  Focus Gain (FG)  $\Rightarrow$  Focus Error Offset (FEO)  
Confirmation mode off

Example:

Tracking Error Offset (TEO) Adjustment value: 03



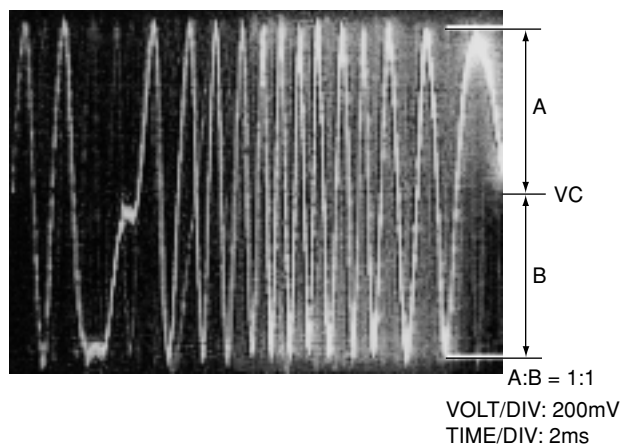
Adjustment value are displayed in HEX.

### 5. Confirmation of Tracking balance

Test point: TE and VC (Vref)

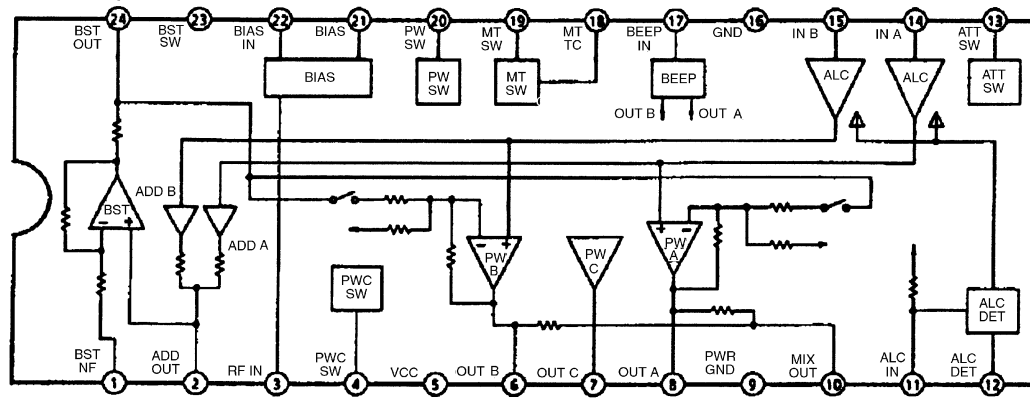
Test disc: TCD-782

Press the DSL button while the test disc playing and confirm the TE waveform is as is shown below.

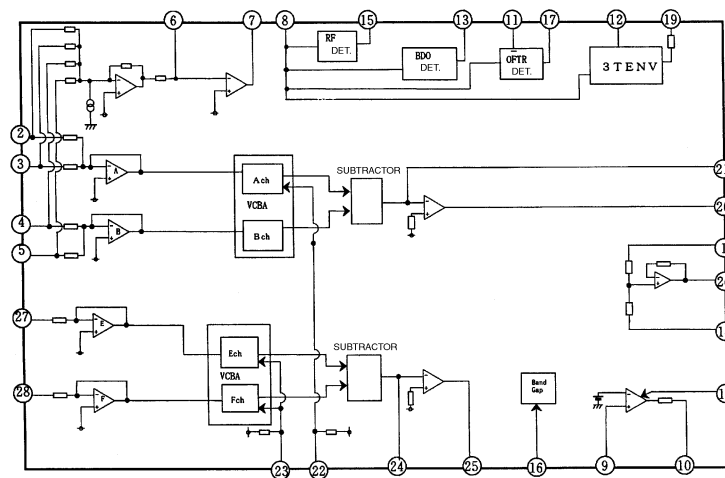


## IC BLOCK DIAGRAM

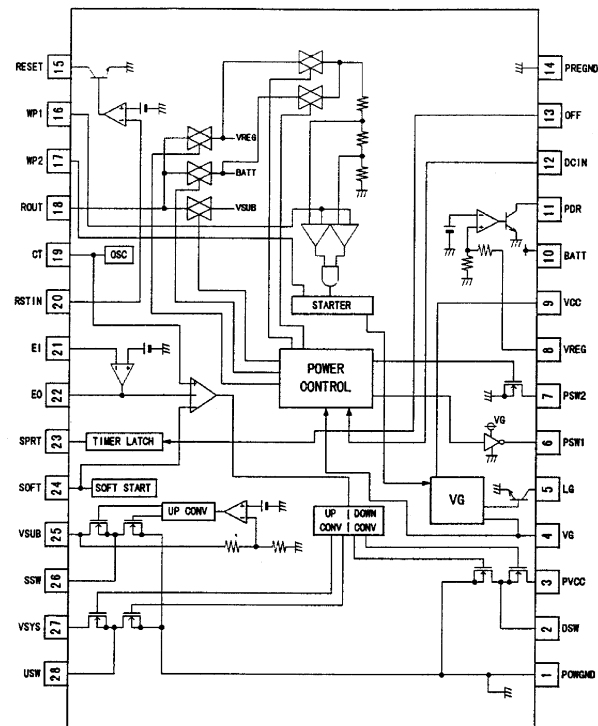
IC, TA2120FN



IC, AN8838NSB



IC, BH6554FV



IC DESCRIPTION  
IC, MSM51V17400D

Pin No.	Pin Name	I/O	Description
1	VCC	—	+2.5V power supply
2	D0	I/O	Data input/output
3	D1		
4	$\overline{\text{WE}}$	I	Write enable
5	$\overline{\text{RAS}}$	I	Row address strobe
6	NC	—	Not connected
8	A10	I	Address inputs
9	A0		
10	A1		
11	A2		
12	A3		
13	VCC	—	+2.5V power supply
14	VSS	—	Ground
15	A4	I	Address inputs
16	A5		
17	A6		
18	A7		
19	A8		
21	A9	I	Address input
22	$\overline{\text{OE}}$	O	Output enable
23	$\overline{\text{CAS}}$	I	Column address strobe
24	D2	I/O	Data input/output
25	D3		
26	VSS	—	Ground

IC, S-93C46AMFN

Pin No.	Pin Name	I/O	Description
1	VCC	—	Power supply
2	NC	—	Not connected
3	TEST	—	Test terminal. Open (can be connected to Vcc or GND)
4	GND	—	Ground
5	DO	O	Serial data output
6	DI	I	Serial data input
7	SK	I	Serial clock input
8	CS	I	Chip select input

## IC, MN662782RPT1

Pin No.	Pin Name	I/O	Description
1	DVDD3	—	Power supply of DRAM interface (pins 2-19)
2	D0	I/O	DRAM data input/output signal 0,
3	D1	I/O	DRAM data input/output signal 1
4	NWE	O	DRAM write enable signal
5	NRAS	O	DRAM RAS control signal
6	D2	I/O	DRAM data input/output signal 2
7	D3	I/O	DRAM data input/output signal 3
8	NCAS0	O	DRAM CAS control signal 0
9	A10	O	DRAM CAS control signal 1 (when two 1M/4M DRAMs are used) DRAM address signal 10 (when 16M DRAM is used)
10 ~ 14	A8 ~ A4	O	DRAM address signals 8 ~ 4
15	A9	O	DRAM address signal 9
16 ~19	A0 ~ A3	O	DRAM address signals 0 ~ 3
20	DVSS2	—	Ground of digital circuits
21	DVDD2	—	Power supply of digital circuits
22	SPOUT	O	Spindle motor drive signal output (absolute value output)
23	TRVM	O	Traverse drive output (positive polarity output)
24	TRVP	O	Traverse drive output (negative polarity output)
25	TRM	O	Tracking drive output (positive polarity output)
26	TRP	O	Tracking drive output (negative polarity output)
27	FOM	O	Focus drive output (positive polarity output)
28	FOP	O	Focus drive output (negative polarity output)
29	FBAL	O	Focus balance adjustment output
30	TBAL	O	Tracking balance adjustment output
31	VREF	—	Reference voltage of DA output circuits (FBAL, TBAL, DSLF2)
32	FE	I	Focus error signal input (analog input)
33	TE	I	Tracking error signal input (analog input)
34	RFENV	I	RF envelope signal input (analog input)
35	OFT	I	Off-track signal input. H: Off-track
36	NRFDET	I	RF detection signal input. L: Detection
37	BDO	I	Dropout signal input. H: Dropout
38	LDON	O	Laser ON signal output. H: ON
39	ARF	I	RF signal input
40	IREF	I	Reference current input
41	ADPVCC	I	AD reference voltage input (analog input)
42	DSLIF	O	Loop filter terminal for DSL
43	DSLIF2	O	DSL unbalance current compensation
44	PLLIF	O	Loop filter terminal for PLL
45	VCOF	O	Loop filter terminal for jitter-free VCO
46	AVDD2	—	Power supply of analog circuits (DSL, PLL, VCOF, AD, DA)
47	AVSS2	—	Ground of analog circuits (DSL, PLL, VCOF, AD, DA)
48	OUTL	O	Lch audio output



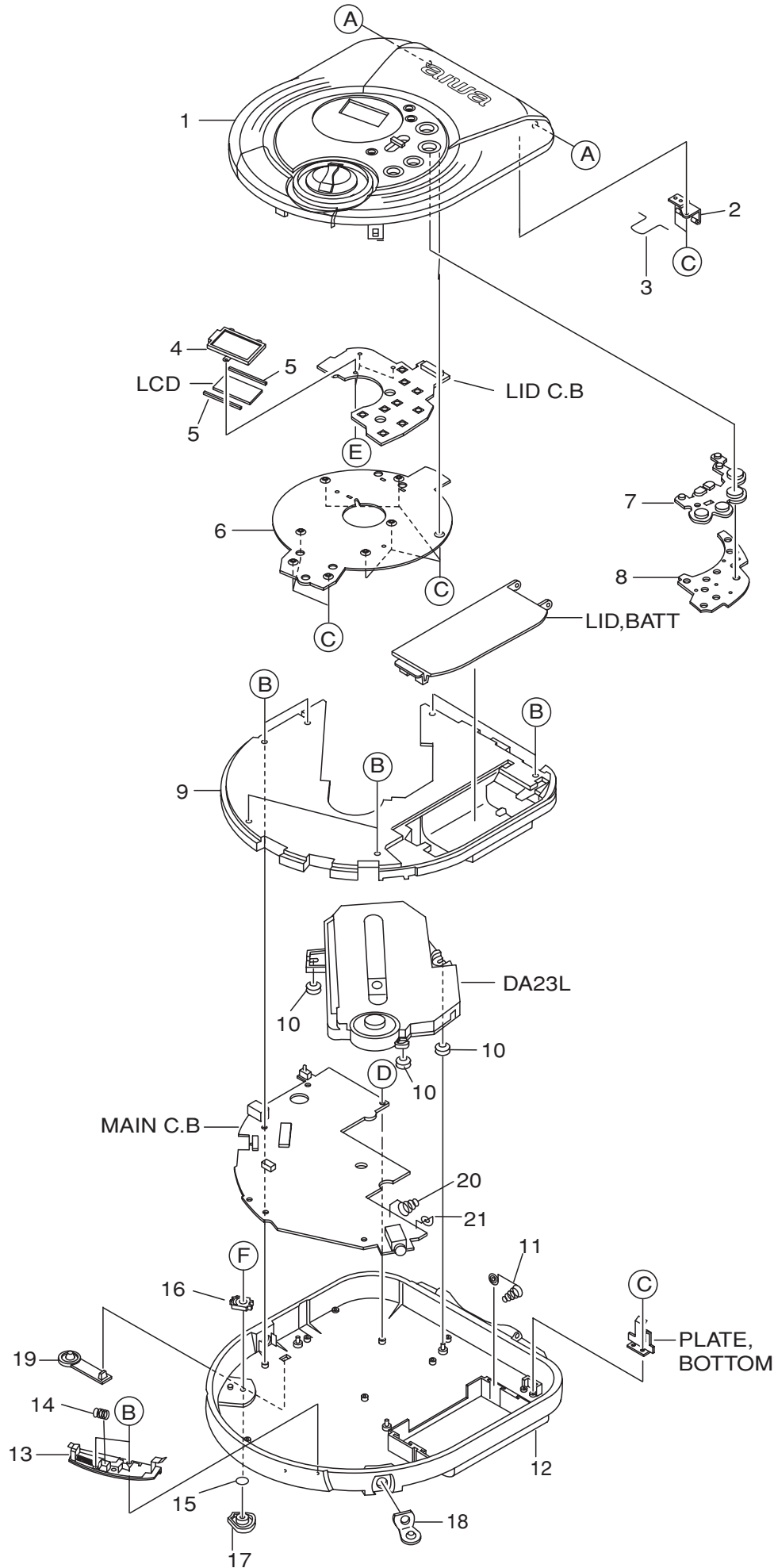
Pin No.	Pin Name	I/O	Description
49	AVSS1	—	Ground of analog circuits (audio output circuit)
50	OUTR	O	Rch audio output
51	AVDD1	—	Ground of analog circuits (audio output circuit)
52	FSEL	I	Noise filter on/off switching input. L: ON; H: OGG
53	TMOD1	I	Terminal mode switching input 1. Normal: L
54	TMOD2	I	Terminal mode switching input 2. Normal: L
55	FLAG	O	Flag signal output
56	CLVS/IPFLAG	O	Command switching. <ul style="list-style-type: none"> <li>• Spindle servo phase sync signal output. H: CLV; L: Rough servo</li> <li>• Interpolation flag signal output. H: Interpolation</li> </ul>
57	EXT0	I/O	Command switching   • Expansion input/output port 0 <ul style="list-style-type: none"> <li>• SRDATA input</li> </ul>
58	EXT1	I/O	Command switching   • Expansion input/output port 1 <ul style="list-style-type: none"> <li>• LRCK input. H: Lch audio data; L: Rch audio data</li> </ul>
59	EXT2	I/O	Command switching   • Expansion input/output port 2 <ul style="list-style-type: none"> <li>• BCLK input</li> </ul>
60	TX	O	Digital audio interface output signal
61	MCLK	I	Microprocessor command clock signal input (latches data at the leading edge).
62	MDATA	I	Microprocessor command data signal input
63	MLD	I	Microprocessor command load signal input. L: Load
64	BLKCK	O	Subcode block clock signal: fBLKCK = 75 Hz (during normal playback) / CDTEXT SYNC signal (DQSY): fDQSY = 300 Hz (during normal playback)
65	SQCK/BCLK	I/O	Command switching   • External clock input for Subcode Q register <ul style="list-style-type: none"> <li>• Bit clock output for SRDATA</li> </ul>
66	SUBQ/LRCK	O	Command switching <ul style="list-style-type: none"> <li>• Subcode Q data output</li> <li>• L/R identification signal output. H: Lch audio data; L: Rch audio data</li> </ul>
67	DMUTE/SRDATA	I/O	Command switching   • Muting input. H: Muting <ul style="list-style-type: none"> <li>• Serial data output</li> </ul>
68	STAT	O	Status signals (CRC, RESY, CLVS, NTTSTOP, SQOK, FLAG6, SENSE, NFLOCK, NTLOCK, BSSEL, SUBQ data, CDTEXT data, anti-shock read-out data)
69	NRST	I	Reset input. L: Reset
70	SPPOL	O	Spindle motor drive signal output (polarity output)
71	PMCK	O	88.2 kHz clock signal output
72	SMCK	O	4.2336 MHz clock signal output
73	SUBC/SSYNC	O	Command switching   • Subcode serial output <ul style="list-style-type: none"> <li>• Sector sync output</li> </ul>
74	SBCK/64FS	I	Command switching   • Clock input for subcode serial output <ul style="list-style-type: none"> <li>• 64FS output</li> </ul>
75	NCLDCK	O	Subcode frame clock signal output (fCLDCK = 7.35 kHz)
76	NTEST	I	Test terminal. Normally, H.
77	X1	I	Crystal oscillator input. f = 16.9344 MHz
78	X2	O	Crystal oscillator output. f = 16.9344 MHz
79	DVDD1	—	Power supply of digital circuits
80	DVSS1	—	Ground of digital circuits

## IC, MN101C439-AC

Pin No.	Pin Name	I/O	Description
1	COM3	O	LCD common
2	COM2	O	LCD common
3	COM1	O	LCD common
4	COM0	O	LCD common
5	VLC3	—	LCD power
6	VLC2	—	LCD power
7	VLC1	—	LCD power
8	VDD	—	LCD power
9	OSC2	O	Microcomputer main clock oscillation output.
10	OSC1	I	Microcomputer main clock oscillation input.
11	VSS	—	GND
12	XI	I	Sub clock oscillation.
13	XO	O	Sub clock oscillation.
14	MMOD	I	Connected VSS.
15	VREF-	—	VSS
16	AN0, PA0	I	Function key input.
17	AN1, PA1	I	PLAY/STOP Key input.
18	AN2, PA2	I	AC adapter detection.
19	AN3, PA3	I	Battery voltage detection.
20	AN4, PA4	I	Remote control input.
21	AN5, PA5	I	"DIGITAL OUT ON/OFF Input. ""L""=ON."
22	AN6, PA6	I	Select input of the EASS mode. Reference of A/D value table.
23	AN7, PA7	I	Resume/hold SW input.
24	VREF+	—	VCC
25	TXD, SB10, P00	I/O	Limit SW input.
26	RXD, SB10, P01	I/O	Power off output of the CD servo try bar. "L" = power off.
27	SBT0, P02	I/O	CD-RW regeneration gain up selection output. "H" = gain up.
28	SBO1, P03	I/O	CD-RW regeneration gain up select output. "L" = gain up."
29	SBI1, P04	I/O	Power down output of H/A.
30	SBT1, P05	I/O	Select output of the gain up with EASS. EASS ON = "L"
31	DK, BUZZER, P06	I/O	BUZZER output of the headphones.
32	RST, P27	I	Microcomputer reset input.
33	RMOUT, P10	I/O	Reset output of DSP.
34	P11	I/O	STAT input of DSP.
35	TM2IO, P12	I/O	MLD output of DSP.
36	TM3IO, P13	I/O	MDATA output of DSP.
37	TM4IO, P14	I/O	MCLK output of DSP.
38	IRQ0, P20	I	BLKCK input of DSP.
39	SENS, IRQ1, P21	I	Wireless remote control sensor signal input.
40	IRQ2, P22	I	Select input of AHC-4 or AHC-5. AHC-4 = "H". AHC-3 = "L".

Pin No.	Pin Name	I/O	Description
41	P23, IRQ3	I	Not used.
42	P40, KEY0	I/O	Power down output of H/A.
43	P41, KEY1	I/O	Select output of the gain up with EASS. EASS ON = "L".
44	P42, KEY2	I/O	DSL2 control output of the headphones. DSL2 = "H". DSL1/OFF = "L".
45	P43, KEY3	I/O	DSL on control output of the headphones. DSL ON = "H".
46	P44, KEY4	I/O	AUDIO MUTE outout.
47	P45, KEY5	I/O	Standby output of the headphones. STANDBY = "L"/POWER ON = "H".
48	P46, KEY6	I/O	Wireless LCD remote control output.
49	P47, KEY7	I/O	Power off output of power supply IC. "L" = POWER OFF.
50	P50, LED0, WE	I/O	Discharge output.
51	P51, LED1, RE	I/O	Charging output.
52	P52, LED2, CS	I/O	EEPROM CS output.
53	P53, SEG27, A16	I/O	EEPROM CLOCK output.
54	P54, SEG26, A17	I/O	EEPROM DATA output.
55	P60, SEG25, A0	I/O	Not used.
56	P61, SEG24, A1	I/O	Closing detection SW input of the cover.
57	P62, SEG23, A2	I/O	FL back light control output.
58	P63, SEG22, A3	I/O	PWM control output of the spindle.
59	P64, SEG21, A4	I/O	Output that is lighted button LED of the CAR-KIT model. "H" = Illumination.
60	P65, SEG20, A5	I/O	Axis loss mode ("H" = There is not an axis loss mode.)
61	P66, SEG19, A6	I/O	"L" = TEST MODE.
62	P67, SEG18, A7	I/O	Select input in 10 sec or 10/40 sec with AHC-5. "H" = 10 sec. "L"=10/40 sec.
63	P70, SEG17, A8	I/O	LCD segment output.
64	P71, SEG16, A9	I/O	LCD segment output.
65	P72, SEG15, A10	I/O	LCD segment output.
66	P73, SEG14, A11	I/O	LCD segment output.
67	P74, SEG13, A12	I/O	LCD segment output.
68	P75, SEG12, A13	I/O	LCD segment output.
69	P76, SEG11, A14	I/O	LCD segment output.
70	P77, SEG10, A15	I/O	LCD segment output.
71	P87, SEG9, D7	I/O	LCD segment output.
72	P86, SEG8, D6	I/O	LCD segment output.
73	P85, SEG7, D5	I/O	LCD segment output.
74	P84, SEG6, D4	I/O	LCD segment output.
75	P83, SEG5, D3	I/O	LCD segment output.
76	P82, SEG4, D2	I/O	LCD segment output.
77	P81, SEG3, D1	I/O	LCD segment output.
78	P80, SEG2, D0	I/O	LCD segment output.
79	SEG1	O	LCD segment output.
80	SEG0	O	Not used.

MECHANICAL EXPLODED VIEW 1/1



## MECHANICAL MAIN PARTS LIST 1/1

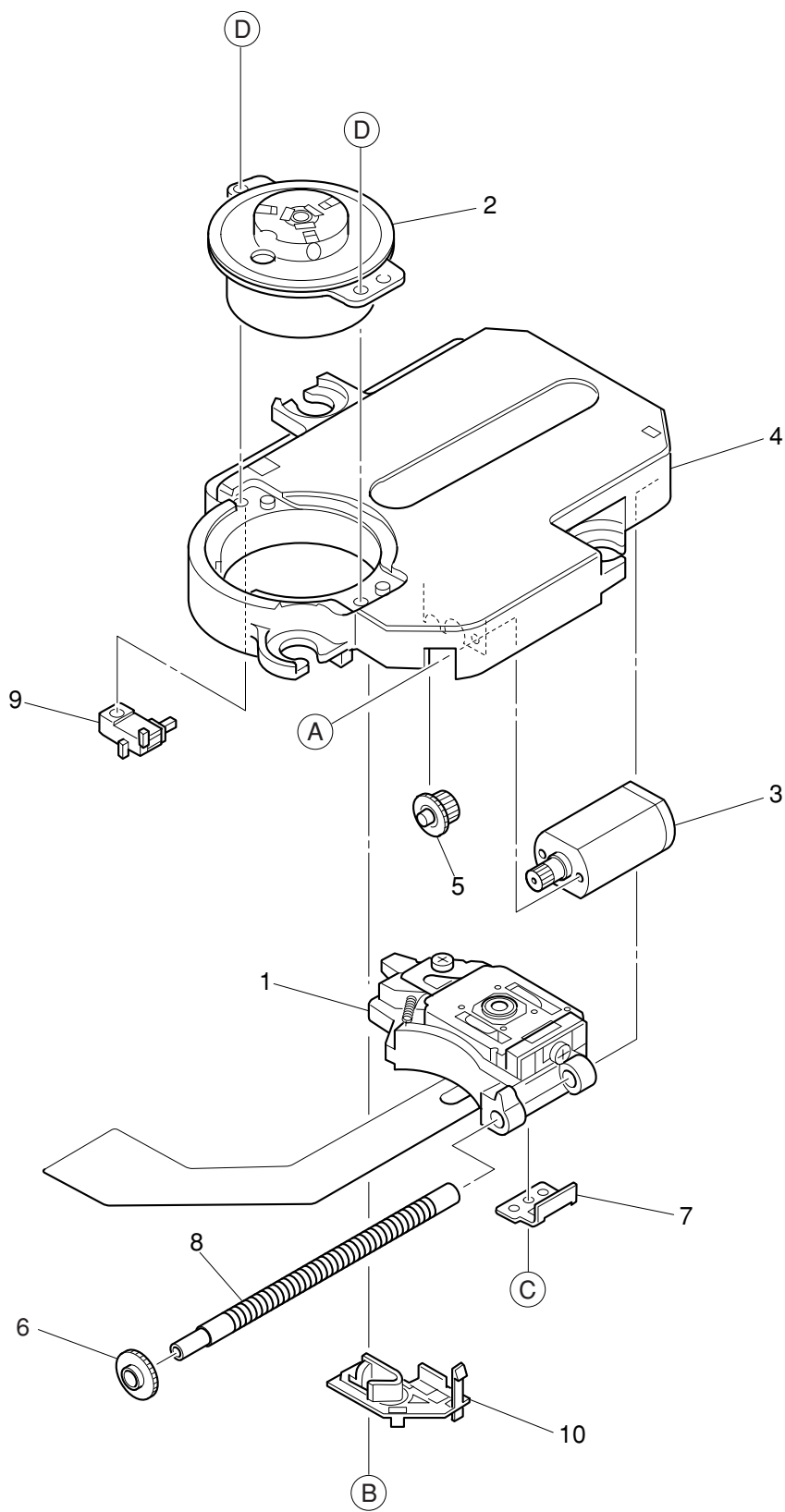
DESCRIPTIONで判断できない物は "REFERENCE NAME LIST" を参照してください。  
If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO	PART NO.	KANRI NO.	DESCRIPTION
1	8A-HC3-014-010		LID ASSY,CD<U2C2>
1	8A-HC3-018-010		LID ASSY,CD 911<1UB2,1U32>
2	8A-HC3-013-010		PLATE,LID CD B
3	8A-HC3-207-010		SPR,LID CD
4	8A-HC3-201-010		PLATE,LCD
5	8A-HC3-206-010		JOINT,LCD AHC-3
6	8A-HC3-012-010		PLATE,LID CD A
7	8A-HC3-011-010		BTN,CONT RBR
8	8A-HC3-202-010		HLD, BTN
9	8A-HC3-015-010		CABI ASSY,CENTER
10	8Z-HC1-225-010		DMPR,MECHA(SP)
11	8Z-HC3-230-010		BAT-CONTACT,(+)(-)
12	8A-HC3-003-010		CABI,BOTTOM
13	8Z-HC3-216-010		HLD, ASSY,LOCK
14	8Z-HC3-213-010		SPR-E,LOCK
15	87-HC3-211-010		RING,KNOB RBR
16	8A-HC3-204-010		JOINT,RTRY HOLD
17	8A-HC3-010-010		KNOB,RTRY HOLD
18	8A-HC3-016-010		CAP, HP RBR
19	8A-HC3-017-010		CAP, DC RBR
20	8Z-HC7-204-010		BAT-CONTACT,(+)
21	8Z-HC7-205-010		BAT-CONTACT,(-)
A	86-HSB-226-010		S-SCREW,LID
B	87-067-869-010		V+1.7-8 HL BLK
C	87-067-732-010		TAPPING SCREW, VT1.4-3
D	88-HSA-227-010		S-SCREW,1.7-4 HL BLK
E	87-067-736-010		SCREW,1.4-2 BLK NLOCK
F	87-067-384-010		SCREWVT1.4-3.5HL

COLOR NAME TABLE

Basic color symbol	Color	Basic color symbol	Color	Basic color symbol	Color
B	Black	C	Cream	D	Orange
G	Green	H	Gray	L	Blue
LT	Transparent Blue	N	Gold	P	Pink
R	Red	S	Silver	ST	Titan Silver
T	Brown	V	Violet	W	White
WT	Transparent White	Y	Yellow	YT	Transparent Yellow
LM	Metallic Blue	LL	Light Blue	GT	Transparent Green
LD	Dark Blue	DT	Transparent Orange		

MECHANISM EXPLODED VIEW 1/1





## MECHANISM MAIN PARTS LIST 1/1

DESCRIPTIONで判断できない物は "REFERENCE NAME LIST" を参照してください。  
If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO	PART NO.	KANRI NO.	DESCRIPTION
1	S0-A41-A20-600		PICKUP LASER ASSY
2	SM-10A-108-001		MOTOR ASSY SPINDLE
3	S0-M10-A10-900		MOTOR SLED ASSY
4	S2-311-A12-200		CHASSIS
5	S2-511-A23-200		GEAR MIDDLE
6	S2-511-A23-100		GEAR, SCREW
7	S2-511-A23-400		GEAR, RACK
8	S2-511-A07-900		SPINDLE SCREW
9	S4-S13-A00-200		SW, LEAF
10	S2-451-A18-100		HOLDER GEAR
A	SS-EXE-A04-000		SCR PAN PCS 1.4-2.2
B	SS-GXE-A00-300		SPECIAL SCREW
C	SS-EXE-A14-100		SPECIAL SCREW
D	SS-GXE-A00-202		SPECIAL SCREW M1.7-4.0

